

Application No. 10/079,878
Reply to Office Action of July 24, 2003

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This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claim 1 (Currently Amended): A color toner composition, comprising:

toner particles comprising:

a binder resin; and

a colorant and a release agent dispersed in the binder resin, and

0.3 to 1.5 parts by weight of titania having a primary particle diameter of 0.005 to 0.02 μ m as an external additive,

wherein the colorant has an average dispersion particle diameter not greater than 0.5 μ m;

the release agent and the binder resin are insoluble to each other;

the toner particles satisfy the following relationship:

$$0.05 \leq D_w/D_4 \leq 0.4,$$

wherein D_w represents an average dispersion particle diameter of the release agent and D_4 represents a weight-average particle diameter of the toner particles; and

the titania has a segregation rate of from 0.5 to 5 %.

Claim 2 (Original): The color toner composition of Claim 1, wherein relationship

$$D_4/D_n \leq 1.3$$

is satisfied, wherein D_4 represents the weight-average particle diameter of the toner particles and the D_n represents a number-average particle diameter of the toner particles.

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Claim 3 (Original): The color toner composition of Claim 1, wherein the release agent is one of polyolefin waxes and carnauba waxes which are subjected to a treatment of eliminating free fatty acid therefrom.

Claim 4 (Original): The color toner composition of Claim 1, wherein the release agent has a melting point of from 85 to 95 °C and a ratio (Mw/Mn) of a weight-average molecular weight (Mw) to a number-average molecular weight (Mn) of from 1.0 to 1.2.

Claim 5 (Original): The color toner composition of Claim 1, wherein the titania has an average primary particle diameter of from 0.002 μ m to 0.03 μ m.

Claim 6 (Original): The color toner composition of Claim 1, wherein the binder resin has a softening point of from 80 to 110 °C.

Claim 7 (Original): The color toner composition of Claim 1, wherein the binder resin comprises at least one of a polyester resin and a polyol resin.

Claim 8 (Original): The color toner composition of Claim 1, wherein the toner particles further comprise a charge controlling agent, and wherein the charge controlling agent comprises a metallic salt of salicylic acid derivatives.

Claim 9 (Withdrawn): A method for manufacturing a color toner comprising:
kneading a first binder resin, a colorant, and water upon application of heat to prepare a master batch pigment;

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kneading a second binder resin, a release agent that is insoluble to the binder resin,
and the master batch pigment upon application of heat to prepare a mixture; and
pulverizing the mixture to prepare a color toner.

Claim 10 (Withdrawn-Currently Amended): The method of Claim 9, further
comprising:

mixing the color toner with 0.3 to 1.5 parts by weight of titania having a primary
particle diameter of 0.005 to 0.02 μ m by a mixer having a mixing blade for not less than 50
sec,

wherein the mixing blade has an end peripheral velocity of from 15 to 35 m/sec.

Claim 11 (Original): A two-component developer comprising the color toner
composition of Claim 1 and a carrier.

Claim 12 (Original): A container containing the color toner composition of Claim 1.

Claim 13 (Original): A container containing the two-component developer of Claim
11.

Claim 14 (Withdrawn-Currently Amended): An image forming apparatus
comprising:

at least one latent-image bearer configured to bear at least one electrostatic latent
image;

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an image developer configured to develop the electrostatic latent image with at least one color developer comprising a color toner to form a color toner image on the latent-image bearer;

a transferer configured to transfer the toner image onto a transfer sheet optionally via an intermediate transfer medium,

wherein the color toner comprises toner particles comprising:

a binder resin; and

a colorant and a release agent dispersed in the binder resin, and

a 0.3 to 1.5 parts by weight of titania having a primary particle diameter of 0.005 to 0.02 μm as an external additive,

wherein the colorant has an average dispersion particle diameter not greater than 0.5 μm ;

the release agent and the binder resin are insoluble to each other;

the toner particles satisfy the following relationship:

$$0.05 \leq D_w/D_4 \leq 0.4,$$

wherein D_w represents an average dispersion particle diameter of the release agent and D_4 represents a weight-average particle diameter of the toner particles; and
the titania has a segregation rate of from 0.5 to 5 %.

Claim 15 (Withdrawn): The image forming apparatus of Claim 14, wherein the transferer is further configured to transfer the toner image onto the transfer sheet through an intermediate transfer medium.

Claim 16 (Withdrawn): The image forming apparatus of Claim 14, further comprising:

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a cleaner configured to collect the color toner remaining on the latent-image bearer;
and

a recycler configured to recycle the color toner collected by the cleaner to the image developer.

Claim 17 (Withdrawn): The image forming apparatus of Claim 15, wherein
the latent-image bearer bears plural electrostatic latent images;
the image developer develops the plural latent images with plural color developers
comprising a different color toner to form plural toner images on the latent-image bearer; and
the transferer transfers the plural toner images onto the intermediate transfer medium
to form the color toner image on the intermediate transfer medium, and then transfers the
color toner image onto the transfer sheet.

Claim 18 (Withdrawn): The image forming apparatus of Claim 15, including plural
latent-image bearers, wherein

each of the latent image bearers bears an electrostatic latent image;
the image developer develops the latent images with plural color developers
comprising a different color toner to form plural toner images on the latent-image bearers;
and

the transferer transfers the plural toner images onto the intermediate transfer medium
to form the color toner image on the intermediate transfer medium, and then transfers the
color toner image onto the transfer sheet.

Claim 19 (Withdrawn): The image forming apparatus of Claim 15, wherein the plural
latent-image bearers are arranged to face the intermediate transfer medium.

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Claim 20 (Withdrawn): The image forming apparatus of Claim 14, including the intermediate transfer medium, wherein the latent-image bearer is pressed against the transferer by a roller.

Claim 21 (Withdrawn-Currently Amended): An image forming method comprising:
forming at least one electrostatic latent image on a latent-image bearer;
developing the electrostatic latent image with at least one color developer comprising
a color toner to form a color toner image on the latent-image bearer;
transferring the toner image onto a transfer sheet optionally via an intermediate
transfer medium,

wherein the color toner comprises toner particles comprising:

a binder resin; and

a colorant and a release agent dispersed in the binder resin, and

a 0.3 to 1.5 parts by weight of titania having a primary particle diameter of 0.005 to
0.02 μ m as an external additive,

wherein the colorant has an average dispersion particle diameter not greater than 0.5
 μ m;

the release agent and the binder resin are insoluble to each other;

the toner particles satisfy the following relationship:

$$0.05 \leq D_w/D_4 \leq 0.4,$$

wherein D_w represents an average dispersion particle diameter of the release agent
and D_4 represents a weight-average particle diameter of the toner particles; and
the titania has a segregation rate of from 0.5 to 5 %.

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Claim 22 (Withdrawn): The image forming method of Claim 20, wherein transferring the toner image onto a transfer sheet transfers the toner image through an intermediate transfer medium.